

CALIFORNIA STATE DEPARTMENT OF PUBLIC HEALTH

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EDITOR

An Analysis of Maternal Mortality in California

A detailed study of the 508 maternal deaths registered in California in 1928 has been completed by Dr. Frances C. Rothert of the United States Children's Bureau. The study consists of an analysis based upon detailed information obtained by physicians of the Bureau of Child Hygiene of the California State Department of Public Health. The study was made possible through the cooperation of physicians who signed certificates for maternal deaths during that year. The study had the approval of the California Medical Association and the Council on Obstetrics of the Association has approved the publication of the report which is abstracted here.

The maternal mortality rate for California in 1928 was 6.1 per thousand live births. There were 83,536 live births and 508 maternal deaths reported in 1928. The urban maternal mortality rate during that year was 64 and the rural maternal mortality rate was 57. Careful study of the maternal deaths during that year reveals the fact that 15 deaths should not have been classified as puerperal. The detailed study, therefore, is based upon 493 deaths. Puerperal septicemia caused 42 per cent and puerperal albuminuria and convulsions caused 21 per cent of the total number of maternal deaths recorded. The proportion of deaths in the urban areas that was due to sepsis (43%) was higher than that in the rural areas (37%). While albuminuria and convulsions caused a smaller portion of the urban deaths, the differences

were not statistically significant. Of the 493 maternal deaths, 183 (37%) occurred before the last trimester of pregnancy. Of the 206 deaths due to puerperal septicemia, 115 (56%) occurred before the last trimester.

ABORTIONS

Abortion, or beginning abortion, preceded the deaths of 134 (27%) of the 493 women who died from puerperal causes in 1928. In 17 cases the type of abortion was not reported, but 32 of the remaining 117 were said to have been spontaneous, 15 therapeutic and 70 induced. Of these, 70 were either self-induced or were suspected to have been induced by some other person (criminal). All but 15 of the 134 women whose deaths followed abortions were married; 27 were primiparae and 64 were multiparae, while the parity of 43 was not reported. Eight of the 27 primiparae, 35 of the 64 multiparae, and 27 of the 43 women whose parity was unknown were reported to have had induced abortions. Abortions preceded 102 (50%) of the 206 deaths from puerperal septicemia.

STILLBIRTHS

The condition of the child at birth was reported for 483 of the 493 women who died from puerperal causes in 1928. Of these 483 women, 496 (97%) had single and 14 (3%) had plural pregnancies. The 97 per cent with single pregnancies included 193 women

(40% of the total reporting type of issue) who had given birth to living children, 87 (18%) who had still-born children of more than seven month's gestation, 164 (34%) who were delivered of previable children, and 25 women (5%) who died undelivered. The 14 women with known plural pregnancies included 10 (2% of the total) with live-born twins, 1 with still-born twins, 1 with one child born alive and one still-born, and 2 with both children previable. Only 42 per cent of the total had given birth to one or more live-born children.

PRENATAL CARE

Of these 493 women who died, prenatal care was inapplicable to the 98 cases of induced abortion and cases in which pregnancy terminated before the third month. In 52 cases, no report on prenatal care could be obtained. Of the remaining 343 women, 112 (33%) had no prenatal care whatever. Thus, 231 of the 493 women were known to have had some medical supervision during pregnancy. Of these 343, 69 (20%) had good, or fair, prenatal care, involving general physical examination, pelvic measurements, and regular monthly visits to a physician, beginning with or before the fifth month. Sixty-one (18%) of the 343 women had a second-grade, or indifferent, prenatal care, consisting of at least a general physical examination and regular monthly visits to a physician, beginning not later than the seventh month. One hundred women (29%) had poor prenatal care which may have consisted of only a single visit or which may have been care of good quality beginning in the eighth or ninth month.

OPERATIVE DELIVERY

A report concerning the method of delivery was obtained for 488 of the 493 women who died from puerperal causes in 1928. Of these 488 women, 210 (43%) had had some operative delivery. Cesarean section was the method of delivery in 73 cases. The 72 women who were delivered by cesarean section in the last trimester constituted 25 per cent of those for whom there were reports on operations who died after reaching the last trimester, a larger proportion than in any of the fourteen other states similarly studied. In the fifteen states together, 11 per cent of the deaths in the last trimester had been preceded by cesarean section.

The physician who actually delivered the patient, or who was in charge of the case if she died undelivered, described his technique in 249 cases. It was described as aseptic in 176 cases (71% of the 249); as attempted aseptic, but under conditions that rendered strict asepsis unlikely, in 23 cases (9%); clean but not sterile in 39 cases (16%), and as not clean in

11 cases (4%). However, in addition to the cases in which the physician was preceded by a midwife or some other person, he was preceded by another physician with less careful technique in 15 cases in which his own technique was graded as aseptic.

HOSPITALIZATION

Three hundred and eighty-six (78%) of the 493 women died in hospitals. One hundred and six died elsewhere and the place of one death was not reported. This woman, and 14 of the 106 who died elsewhere, had entered a hospital but left it before death. Therefore, 401 (82%) of the 493 women who died of puerperal causes had been hospitalized. There was a larger percentage of hospitalization among women who died in California (81%) than among those who died in any of the other states similarly studied, with the exception of Washington, which had the same percentage. Fifty-seven women died in California hospitals that were not registered by the American Medical Association. In the fifteen states studied together, 57 per cent of the women who died had been hospitalized.

Of the 493 women who died, 459 were white and 34 were of other races. Mexicans are grouped with whites in accordance with the U. S. Bureau of the Census classification. Three hundred and two (67%) of the white women were native and 151 (33%) were foreign-born.

SUMMARY

The 508 deaths assigned by the Bureau of the Census to puerperal cause in 1928 were studied by examination of the death certificates and by personal interviews with the attending physicians. Four hundred and ninety-three of the 508 deaths registered were found to be strictly puerperal, but the maternal mortality rate based on 493 deaths (59) may be less accurate than that based on the 508 deaths (61), as deaths erroneously certified as puerperal were subtracted but deaths erroneously certified as non-puerperal were not added.

Forty-two per cent of the 493 deaths were due to puerperal septicemia, 21 per cent to puerperal albuminuria and convulsions, 10 per cent to puerperal hemorrhage, 12 per cent to accidents of pregnancy, 11 per cent to other accidents of labor, and 4 per cent to puerperal phlegmasia alba dolens, embolus, sudden death.

Twenty-seven per cent of all the deaths and 50 per cent of the deaths from puerperal septicemia followed abortion (that is, the termination of a previable pregnancy). Fourteen per cent of all the maternal deaths and 31 per cent of the sepsis deaths followed abortions reported as induced, other than therapeutic.

Thirty-seven per cent of the puerperal deaths were of women who died before reaching the last trimester of pregnancy. This includes deaths following abortion, deaths following ectopic gestation, and deaths of women who died undelivered.

In studying prenatal care the deaths of women who had not reached the third month of pregnancy, also of women who had induced abortions or concerning whom no data on prenatal care was obtainable, were excluded from consideration. Most of these probably had no prenatal care. Of the remaining 343 women, 33 per cent had had no prenatal care, 29 per cent had had poor care, 18 per cent had had indifferent care, and 20 per cent had had good care.

Of the 310 women who died after reaching the last trimester of pregnancy, 57 per cent were reported to have had operative deliveries. Twenty-four per cent of the deaths in the last trimester had been preceded by cesarian section; this was a larger proportion than that in any of the 14 other states similarly studied.

Eighty-one per cent of the women who died of puerperal causes had been hospitalized, and 78 per cent had died in hospitals. But only half of those who died in hospitals were women in the last trimester of pregnancy who had been in the hospitals for delivery.

HOW TO SAVE A LIFE FROM DROWNING

PRONE PRESSURE METHOD

1. Kneel, and straddle the patient below the hips, placing hands on small of the back with fingers over the lowest ribs, tips of fingers just out of sight.

2. With arms straight, while counting one, two, swing forward, bearing weight on body firmly but not violently.

3. Swing backwards while counting one, straightening up and thus relieving pressure—this allows air to be drawn into the lungs. Rest in this position for two counts.

4. Repeat these movements rhythmically, forward and backward, without interruption, about twelve to fifteen a minute, until natural breathing is restored.

Meanwhile, if assistance is at hand, a physician should be sent for, patient's tight clothing should be loosened at neck, chest or waist, and patient should be kept warm.

Patient should not be moved from this spot until he is breathing normally and then should be carried in lying position to a place where he can be kept warm and receive expert medical attention.

The art of nursing is a gift of God.

THE MODERN VIEW OF PREVENTIVE MEDICINE

It is not unusual to hear Preventive Medicine discussed as if it is something apart, something altogether different from other branches of medical work. Yet surely most leaders of medical thought have long since discarded this idea, if indeed they ever had it. For many years now it has been an instruction of the General Medical Council, that important body in England which practically directs medical education throughout the Empire, that during his whole course of training the medical student shall have impressed on him the preventive aspect. The British Medical Association in England has taken the same view, and in formulating its proposals in 1930 for a general medical service made it "a fundamental principle * * * that a satisfactory system of medical service must be directed to the preventing of disease, no less than to the relieving of individual sufferers."

In his daily round the medical practitioner is the best public health worker we have. He aims not only to cure his patient, but to keep him in health. He aims to prevent the mild disorder from becoming a serious disease, to ward off dangerous complications.

The preventive and curative branch of medicine are not things apart. They are inseparably joined, an essential unity. The work at the bedside, indeed all efficient clinical work, is really an important part of Preventive Medicine. "To heal the individual sufferer, to enable him to resume his place in society, and to assist him to avoid recurrences of his trouble, these surely are our aims." The present high status of our community health is in large part due to the quiet unobstructive labors of general medical practitioners.—*Public Health Notes*, South Australia Dept. of Public Health.

MISS PORTER RETIRES FROM NURSES' BUREAU

Miss Nellie M. Porter, who has been Chief of the Bureau of Registration of Nurses for the past two years, retired from the position August 14. She is succeeded by Miss Helen F. Hansen, who was formerly an inspector in the bureau. Miss Hansen has been recently on the teaching staffs of hospitals in New York City and San Francisco and is well qualified to continue the high standards maintained under Miss Porter's administration.

Medicine is as old as the human race, as old as the necessity for the removal of diseases.—Heinrich Haeser.

NUTRITION AND FOOD ELEMENTS

Within the past few years the attention of the general public has been focused upon foods and foodstuffs and nutrition in general to a remarkable degree. Many persons bearing the self-conferred designation of "Nutritionist," with limited knowledge of the subject, have been urging upon the public the inclusion or exclusion of various important articles of diet. Many of these food faddists have a sincere conviction that it is their duty to save mankind from himself as relates to the ills produced by improper diet and other evils. Others, with a more mercenary interest, are offering for sale some articles alleged to contain the food elements necessary for the proper maintenance of health. Most of these persons, many of whom are sincere but misguided, seem to have a one-sided viewpoint of the broad question of nutrition and food.—Surgeon General H. S. Cumming.

MORBIDITY***Diphtheria**

29 cases of diphtheria have been reported, as follows: Oakland 1, Fresno 1, Bakersfield 2, Los Angeles County 1, Beverly Hills 1, Compton 1, El Monte 1, Glendale 1, Los Angeles 11, San Gabriel 1, Riverside County 1, Sacramento County 7.

Chickenpox

64 cases of chickenpox have been reported. Those communities reporting 10 or more cases are as follows: Oakland 15.

Measles

48 cases of measles have been reported. Those communities reporting 10 or more cases are as follows: San Diego 18.

Scarlet Fever

51 cases of scarlet fever have been reported. Those communities reporting 10 or more cases are as follows: Los Angeles 13.

Whooping Cough

217 cases of whooping cough have been reported. Those communities reporting 10 or more cases are as follows: Berkeley 23, Oakland 17, Los Angeles County 17, Los Angeles 73, Pasadena 10.

Smallpox

3 cases of smallpox have been reported, as follows: Santa Clara County 2, Ventura 1.

* From reports received on August 21st and 22d for week ending August 19th.

Typhoid Fever

10 cases of typhoid fever have been reported, as follows: Imperial County 1, Glendale 1, Los Angeles 4, Monterey County 2, Sacramento County 1, California 1.**

Meningitis (Epidemic)

2 cases of epidemic meningitis have been reported, as follows: Bell 1, Sonoma County 1.

Leprosy

One case of leprosy from Oakland has been reported.

Poliomyelitis

One case of poliomyelitis from Alhambra has been reported.

Plague (Bubonic)

One case of bubonic plague from Whittier has been reported.

Trichinosis

One case of trichinosis from Los Angeles has been reported.

Food Poisoning

One case of food poisoning from Los Angeles County has been reported.

Tularemia

One case of tularemia from Redondo Beach has been reported.

Coccidioidal Granuloma

Six cases coccidioidal granuloma from Kern County have been reported.

Relapsing Fever

One case of relapsing fever, source of infection Tuolumne County, has been reported.

** Cases charged to "California" represent patients ill before entering the State or those who contracted their illness traveling about the State throughout the incubation period of the disease. These cases are not chargeable to any one locality.

Intelligence is the most potent factor that can be directed against disease.—F. M. Pottenger.